Use of Urine Ketone Strips

Diabetic Ketoacidosis (DKA) is a complication almost exclusively seen in type 1 diabetics. It is caused by an imbalance of insulin (the only hormone in the body that lowers insulin) and glucagon (one of the primary hormones in the body that raises glucose). Specifically, any combination of too little insulin or too much glucagon can result in DKA.

Examples of such an imbalance are 1) too little insulin such as can occur at initial diagnosis of type 1 diabetes, 2) too little insulin that can occur that can occur due to non-compliance with therapy, and 3) too much glucagon that can occur from stress such as those caused by infections.

The common result of too little insulin or too much glucagon is hyperglycemia or high glucose. It is extremely rare to get DKA if the glucose level is < 250. Therefore, the first sign that DKA could occur is persistently elevated blood glucose.

If hyperglycemia persists, the next warning sign is the presence of ketones in the urine. This always occurs before ketones are present in the blood. This presence of ketones in the blood signifies DKA.

Presence of urine ketones BEFORE blood ketones are present provides a window of treatment before the much more serious DKA develops. DKA always requires reporting to the Emergency Room.

On the other hand, if urine ketones are present and only at a mild level, blood ketones are not likely to be present and if you are feeling okay, you may be able to receive at home as long as you can be in contact with a medical professional. You will need to discuss with your provider what to do if this happens.

So, the following describes how to use the urine ketone strips.

1. The American Diabetes Association (ADA) recommends checking for urine ketones whenever your sugar is > 250. Some, as they are coming into control, frequently have sugars >250 and therefore checking for ketones at this level may be impractical. Certainly, urine should be checked anytime sugars are >350. You must use wise judgment.
2. However, if your sugar is >250 and you are sick, particularly with fever and/or vomiting, you must check for urine ketones.
3. Check for urine ketones by placing the ketone strip in direct contact with urine as you void or after collecting in a container.
4. Progressively darker shades of purple signify higher levels and are usually marked mild, moderate, and severe. If severe, you must report to the Emergency Department (ED). Mild can usually be treated at home IF you can get in immediate contact with an experienced professional. The ADA recommends an ED visit for moderate levels but many times these can also be treated at home with immediate assistance from a qualified individual.